

Lead Toxicosis

ABOUT THE DIAGNOSIS

Cause: Lead toxicosis (lead poisoning) is a health hazard in dogs and cats, just as it is in people. When lead is inhaled or ingested (eaten, swallowed), it can cause immediate intestinal disturbances like vomiting and/or diarrhea. Long-term, sustained exposures, especially in small amounts that escape notice and are taken in over periods of weeks or months, can cause serious blood disturbances and especially neurologic problems like seizures.

Younger animals, especially puppies and kittens, are generally diagnosed with lead toxicosis more often than older dogs and cats, perhaps because they are more likely to chew on things they should not. Possible sources of lead include:

- lead-based paint (including dry paint on wood, walls, and other surfaces)
- batteries (both disposable household batteries and elements from car batteries)
- golf balls
- roofing materials
- lead pipes
- leaded gasoline and oil from leaded gasoline
- lead pellets and shot
- rug padding
- linoleum
- improperly glazed ceramic food or water bowls
- curtain weights
- fishing sinkers

Any of these sources may be eaten; the only one that is also a risk for inhalation is dry, lead-based paint: during renovations, especially, sanding puts lead-containing dust particles in the air, and dogs or cats can develop lead toxicosis from inhaling them directly from the air, or off the ground after the dust has settled. Lead can cross the placenta of a pregnant dog or cat and affect her fetuses. Lead can also be excreted in milk during nursing. Therefore, avoid exposure of a pregnant dog or cat to sources of lead that can be eaten or inhaled.

Diagnosis: The symptoms of lead toxicosis can be very subtle, or even undetectable at first. If a suspicion of lead toxicosis exists, your veterinarian will begin by obtaining as complete a medical history for your pet as possible. Be sure to mention sources and amounts your pet may have had access to, the symptoms you have observed, and any other known substances (other construction site materials, medications, exterminator baits) in your pet's environment that your pet could have ingested or inhaled. Your veterinarian will perform a physical examination to look both for symptoms of lead toxicosis, but also for symptoms of other illnesses that could be mistaken for lead toxicosis. A complete blood count (CBC) is a blood test that may occasionally reveal abnormalities characteristic of lead poisoning (e.g., anemia with nucleated red blood cells or basophilic stippling). Serum biochemistry tests are additional blood tests that provide information about your pet's kidney and liver function and overall health status, which are important in preparation for treatment. X-rays of the chest and abdomen may be taken to seek out lead in the gastrointestinal tract. To confirm a diagnosis of lead toxicosis, your veterinarian will send a blood sample to a laboratory where the lead level can be measured.

LIVING WITH THE DIAGNOSIS

When the diagnosis of lead toxicosis is confirmed, it is important to remove all lead-containing items from the household to prevent

re-exposure or intoxication of other pets, and of children and other family members. If you suspect or know that your pet had ingested lead, contact your veterinarian immediately because lead poisoning often develops slowly. Intervening shortly (minutes, hours) after exposure to lead offers the best opportunity of minimizing lead uptake, and therefore, reduces the chances of lead toxicosis.

Keep pets away from areas undergoing building renovation that may have been painted before 1977. Much of the paint manufactured before this year contained lead. For this same reason, puppies that are "teething" (chewing objects indiscriminately) should not be allowed to chew on painted surfaces (moldings, lumber, furniture, etc.) since the paint covering them may be lead-based. Clean up roofing materials on the ground outside if there is potential for ingestion and do not allow your pet to lick or chew lead pipes.

TREATMENT

Treatment of a dog or cat with lead toxicosis may first involve removing the lead from the gastrointestinal tract by inducing vomiting (emesis), flushing out the stomach (gastric lavage), and/or giving enemas. Large lead-containing objects in the stomach or intestine occasionally need to be physically removed, either with an endoscope (minimally invasive), or if very large or awkwardly-shaped, with surgery. When lead has been taken up into the body (repetitive low-grade exposures, or large ingestion not dealt with promptly), medication may need to be given to draw the lead out of tissues, bind the lead in the blood, and facilitate its elimination from the body through the kidneys and out of the body via the urine. These medications are known as chelating agents. Depending on the health status of your pet and the medication administered, chelation treatment may or may not be necessary. If it is performed, chelation treatments typically take several days and may be given in pill form at home, or as injections in the hospital, depending on the specific features of your pet's case and availability of individual chelating agents; a second course of treatment may be required. Your veterinarian may also give intravenous (IV) fluids to ensure that your pet is well-hydrated, thus reducing the risk of kidney damage.

If necessary, anticonvulsant medication can be administered to help control seizures.

DOs

- Inform your veterinarian if your pet has ever been diagnosed with a medical condition or is taking medication; if possible bring the medication container to the veterinary clinic. This serves two purposes: to be sure that medication-related issues are not likely to be responsible for the symptoms (rather than lead toxicosis), and to be sure that any medication being taken is compatible with chelation agents if chelation treatment becomes necessary.
- Give medication exactly as directed by your veterinarian, and if you are concerned about possible negative effects, discuss them with your veterinarian immediately, rather than simply discontinuing the treatment.
- Evaluate your home for items that (may) contain lead and do not allow your dog or cat to have access to them. "Puppy-proofing" and "kitten-proofing" the home can be lifesaving precautions and should be performed prior to bringing a new pet home.

DON'Ts

- Do not allow your dog or cat to chew or lick any object that you suspect or know contains lead (see list, above).

- Do not assume that ingested lead will be eliminated in stools (feces, excrement) when your pet has a bowel movement; lead can dissolve during digestion and be absorbed into the body (producing its damaging effects) long before it is passed in the stool.

WHEN TO CALL YOUR VETERINARIAN

- If you cannot keep a scheduled appointment.
- If you are unable to give medication as directed.
- If you know or suspect that your dog or cat has ingested a lead-containing object.
- If symptoms do not improve after giving medication, and especially if they worsen.
- If you believe that your dog or cat is having a negative reaction to medication (hives, excess drooling, anxiety, vomiting, diarrhea, respiratory difficulty, seizures, etc.).

SIGNS TO WATCH FOR

The following are nonspecific symptoms that can occur with lead toxicosis. By themselves, they are not strictly conclusive of lead toxicosis, but when these symptoms occur together with a recent possibility of exposure to sources of lead, you should consult your veterinarian to check for lead-related health problems in your pet.

- General signs of illness: loss of appetite, weakness, lethargy, weight loss, abnormal behavior (especially hiding more than usual, unprovoked aggression, and disorientation).
- Signs of gastrointestinal (digestive) problems: abdominal pain, vomiting, decreased appetite.
- Signs of neurologic problems: blindness, muscle tremors, seizures, awkward or uncoordinated gait (ataxia).

ROUTINE FOLLOW-UP

- At least one and usually several follow-up visits can be necessary, to monitor symptoms and blood lead levels. Once the blood lead levels become undetectable, the problem is considered fully resolved and further rechecks are usually not needed if no permanent symptoms remain.

Other information that may be useful: "How-To" Client Education Sheets:

- How to Induce Vomiting
- How to Puppy-Proof a Home



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